

REMARKS

Claims 1-6 are pending in the application. Claims 1-5 are rejected. Claim 6 is objected to but would be allowable if placed in independent form. Applicant has amended claims 3, 4 and 6 to place them in independent form and has amended claims 1 and 5 to better define the invention. Applicants respectfully submit that all claims are now patentable.

Claim Rejections -35 U.S.C. §102

Claims 1-5 are rejected under 35 U.S.C. §102(b) as being anticipated by Ichihashi et al (5,062,454). This rejection is traversed for at least the following reasons.

The present invention concerns an oil pressure control apparatus, particularly a control valve having a filter member. As illustrated in Fig. 3, for example, the control valve 3 is disposed between a pump 1, acting as a source of high pressure fluid that is provided via a passage 4, and an actuator 200 that is coupled to the control valve via first and second passages 8, 9. Filters 38' and 39' are fitted around the circumference of a spool valve body 10, which forms a part of the control valve, at a location corresponding to a first port 13 and a second port 14, as illustrated in Fig. 4.

The filters 38', 39' include a filter portion 41 and a flexible frame 42 that encloses the filter portion 41. As illustrated in Figs. 5-8, the filters 38', 39' are formed substantially as a ring in cross-section and are supported by the frame 42, which is formed of two connectable curved portions that have one connectable end a hook 43 and at the other connectable end a projection 44 (45) that engages a hook end 43 in order to secure the filter circumferentially around the spool. The two portions of the frame 42 are fitted within respective slots 23, 24 on the circumferential inner surface of the valve body 10 for positioning accuracy. The C-shape of the two filters 38', 39' causes a tensile force and a tight binding between the hook 43 and the projection 44, as explained at page 7 of the present application.

The invention is defined in claim 1 as an oil pressure control apparatus having a control valve with a valve body and a filter member, the filter member having a hook at one end and being held under tension by the hook. Claim 1 also defines the frame as having a hook at one

end and a matching projection at a second opposite end which are coupled together to form a substantially cylindrical body having an axis. Claim 2 recites a frame portion provided around the filter portion which comprises a synthetic resin. Claim 3, which depends from claims 1 and 2 defines the frame portion as having a pair of main frames 42 provided on both sides of the filter and a plurality of cross pieces 45 provided between the frames, wherein one of the cross pieces comprises the hook. Claim 5 defines the invention in a manner similar to claim 1 and further adds that there are cross pieces disposed axially with respect to the axis of the cylindrical body.

Ichihashi et al

The Examiner has cited the patent to Ichihashi for its teaching of a control valve in Fig. 1, having a spool 2 that is axially disposed within the valve and has a circumferential filter 4 that is constituted by a filter body 41 and a filter element 45. As explained at col. 5, line 44, the filter body 41 is cylindrical in shape (see Figs. 3-6) and has substantially the same diameter as that of a cross aperture 25 within which it is disposed. The filter is intended to prevent particles of foreign and the fluid entering and blocking an orifice 27, which extends along the axis of the spool 2. As illustrated in Figs. 2-6, the filter is secured within the spool 2 by a resilient member or pin 5, considered by the Examiner to be a "hook." Fluid entering the spool from the pump port 13 will enter the filter and then pass via orifice 27 into horizontal opening 26, which is arranged along the axis of the spool and leads to the pilot chamber P. Fluid must pass through the filter 45 before entering the orifice passage 27.

As to the detailed structure of the filter, two tapered portions 42 are formed on the top edge of the body 41 and are located diametrically opposite to each other. Two small-diameter portions 43 are provided on the lower edge of the filter body 41 and a recess 44, extending from the outer surface to the inner surface is formed in each of the small diameter portions 43. The recesses are located so they are diametrically opposite to each other and offset by 90° from the tapered portions 42. The filter element 45 is a flat disk-shaped piece of nylon mesh and is attached to the inner surface of the filter body 41 by adhesive. When inserted into the cross aperture 25, the small diameter portions 43 are in mutual abutment and the recesses 44 are in mutual opposition. Thus, a hole formed by the recesses 44 is in opposition to the orifice 27.

A retainer pin 5 is used to clamp and to hold the filters together by locking into the tapered portions 42.

Ichihashi et al does not teach a frame having a hook at one end and a matching projection at a second opposite end which are coupled together to form a substantially cylindrical body having an axis, as set forth in claims 1 and 5. Further, Ichihashi et al does not teach that there are cross pieces disposed axially with respect to the axis of the cylindrical body, as recited in claim 5. Thus, these claims should be patentable.

Applicants also submit that the features of claim 3, requiring cross pieces connected to the mainframes, where one of the cross pieces comprises the hook, is not found in the reference. Further, the recitation in claim 4 that the valve body has an annular groove in a circumferential direction with the filter member provided in the annular groove, is not found in the reference. As can be clearly seen in Fig. 2, the filter member 41 does not fit within any circumferential groove, although it does fit within cross aperture 25. However, Applicants respectfully submit that the groove in this case is not circumferential.

On the basis of the foregoing, Applicants have placed claims 3, 4, and 6 into independent form. Thus, these claims also should be considered to be patentable.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Amendment Under 37 CFR 1.111
10/665,499

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

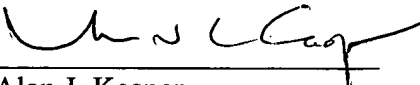
SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: July 19, 2004



Alan J. Kasper
Registration No. 25,426